

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON
AT SEATTLE

RING & PINION SERVICE, INC.,

Plaintiff,

v.

ARB CORPORATION LTD.,

Defendant.

CASE NO. C09-0586

ORDER ON CLAIM
CONSTRUCTION

I. INTRODUCTION

This patent infringement action is now before the Court for a ruling on claim construction. The Court held a *Markman*¹ hearing in this case on February 24, 2010. The Court has fully considered the parties' memoranda and exhibits and relevant case law, and now issues this Order on claim construction.

¹ *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996).

II. BACKGROUND

Plaintiff Ring & Pinion, Inc. (“R&P”) filed this patent infringement action seeking a declaratory judgment of non-infringement. ARB Corporation, Ltd. (“ARB”) is counterclaiming, alleging that Plaintiff has infringed its United States Patent No. 5,591,098 (“the ‘098 patent”), titled “Locking Differential.” This patent teaches a device for allowing a vehicle’s wheels to move at different speeds relative to each other by means of a locking mechanism activated by compressed air. The patent entails a locking means, actuator, and cylinder means all positioned on the same side of the pinion gear. Previous locking differentials had these components on different sides of the pinion gear. The placement of all these components on the same side of the pinion gear represented an improvement by allowing differentials to be smaller and more affordable to produce.

The parties do not dispute that the placement of all of these components on one side indicates that the locking means, actuator, and cylinder means are positioned on the same side of a plane extending through the center of the pinion. However, if a device is produced in which any part of the locking means, actuator, or cylinder means cross over the center of the pinion, that device would be non-infringing. The spring and its housing cross over the center line on R&P’s allegedly infringing device. R&P argues that because the spring and the cylinder containing compressed air are force-exerting components, which constitute part of the actuator, its device is non-infringing. ARB contends that the actuator does not include any force-exerting elements and merely converts received forces into motion. R&P also argues that the cylinder means must house the entire actuator, while ARB contends that it houses only the piston portion of the actuator.

1 **A. The ‘098 Patent**

2 The ‘098 patent is titled “Locking Differential.” The patent was filed on February 9,
3 1995 and was issued on January 7, 1997. The abstract summarizes the device in the following
4 way:

5 A locking differential comprising a differential carrier housing a pair of bevel gears and
6 at least one pinion gear which meshes with the pair of bevel gears, a locking ring
7 positioned within the differential carrier between the carrier and one of the bevel gears
8 and splined to the carrier ... locking teeth on the bevel gear, an annular cylinder formed
9 in the carrier and receiving a locking ring whereby the charging of the cylinder with
compressed air causes the locking ring to move into its locking position with the teeth
engaging the teeth against the action of springs to lock the differential. The locking ring
is located within a shaped cover plate which closes the differential carrier and provides
the bearing support for the bevel gear.

10 The patent recites twenty-one claims, at least two of which—claims 1 and 17—contain the
11 disputed terms. The parties identified in their Joint Claim Construction and Prehearing
12 Statement (Dkt. #19) the following terms in the ‘098 patent to be construed by the Court:

13 (1) “actuator”

14 (2) “cylinder means”

15 Representative claims 1 and 17 of the ‘098 patent, with the disputed terms set forth in
16 **bold**, are fully set forth here:

17 1. A locking differential comprising

18 a differential carrier housing a pair of bevel ears [sic] and at least one pinion gear which
19 meshes with said pair of bevel gears,

20 a locking means positioned within said differential carrier between said differential carrier
and one of said bevel gears and keyed or splined to the carrier.

21 said locking means including locking teeth or spline means,

22 said one of said bevel gears being formed with cooperating teeth or spline means,

23 **cylinder means** formed in said differential carrier housing an **actuator** position to cause
24 movement of said locking means relative to said carrier, whereby said locking teeth or spline

means on said locking means engage said teeth or spline means on said one bevel gear to prevent rotation of said one bevel gear relative to said carrier to thereby lock said differential,

said locking means and said **cylinder means** being positioned adjacent said one of said bevel gears, and

a shaped cover plate forming part of said differential carrier and structured and arranged to support said one of said bevel gears, and

said cover plate comprising a cavity formed therein and in which said locking means is located,

wherein said locking means is positioned on only one side of said pinion gear,

said **actuator** and **cylinder means** are positioned on only one side of said pinion gear, and

said locking means, **actuator** and **cylinder means** are all positioned on the same side of said pinion gear.

'098 patent, col. 3, lines 44-66; col 4, lines 1-9.

17. A kit for convening a differential to a locking differential, said kit including

a differential carrier structured and arranged to support a pair of bevel gears and at least one pinion gear therein,

a locking means structured and arranged to be keyed or splined to said differential carrier so as to be capable of axial movement relative to said carrier between said carrier and one of said bevel gears,

said locking means including locking tooth or spline means,

a replacement bevel gear formed with tooth or spline means which are structured and arranged to co-operate with said tooth or spline means associated with said locking means to prevent rotation of said one bevel gear relative to said carrier,

said carrier being formed with **cylinder means** structured and arranged to house an **actuator** for causing axial movement of said locking means relative to said carrier in use,

said locking means and said **cylinder means** being positioned adjacent said one of said bevel gears, and

a shaped cover plate forming part of said differential carrier and structured and arranged to support said one of said bevel gears and comprising a cavity in which said locking means is arranged to be located,

1 wherein said locking means is structured and arranged to be positioned on only one side of
2 the pinion gear, and

3 said **actuator** and **cylinder means** are structured and arranged to be positioned on only one
4 side of pinion gear, and

5 said locking means, **actuator** and **cylinder means** are all structured and arranged to be
6 positioned on the same side of the pinion gear.

7 ‘098 patent, col. 5, lines 19-36; col 6, lines 1-16.

8 **III. DISCUSSION**

9 **A. Legal Standard**

10 The claims of a patent define the limits of the patentee's statutory right to exclude.
11 *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed.Cir.2005). The meaning and scope of the
12 claim language is a question of law for the court. See *Markman v. Westview Instruments*, 52 F.3d
13 967, 976-79 (Fed.Cir.1995).

14 Patents are addressed to practitioners in the field of the patented invention, so a court
15 should usually construe claim language consistent with its “ordinary and customary meaning” to
16 a person of ordinary skill in the relevant art on the effective filing date of the patent application.
17 *Phillips*, 415 F.3d at 1312-13. “Such a person is deemed to read the words used in the patent
18 documents with an understanding of their meaning in the field, and to have knowledge of any
19 special meaning and usage in the field.” *Id.* at 1313 (quoting *Multiform Desiccants, Inc. v.*
20 *Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed.Cir.1998)).

21 To determine the “ordinary and customary meaning” of a claim term, a court should first
22 consult the intrinsic evidence, which consists of the claims, the specification, and the prosecution
23 history. *Primos, Inc. v. Hunter's Specialties, Inc.*, 451 F.3d 841, 847-48 (Fed.Cir.2006) (“In
24 ascertaining the ordinary and customary meaning of a claim term, a court's primary focus should
be on the intrinsic evidence of record, viz., the claims, the specification, and, if in evidence, the

prosecution history.”); *Kinik Co. v. Int'l Trade Commission*, 362 F.3d 1359, 1365 (Fed.Cir.2004) (“The words of patent claims have the meaning and scope with which they are used in the specification and the prosecution history.”). Prior art cited to the examiner during prosecution is considered part of the prosecution history. *See Phillips*, 415 F.3d at 1317.

It is “[a] fundamental rule of claim construction [] that terms ... are construed with the meaning with which they are presented in the patent document. Thus claims must be construed so as to be consistent with the specification” *Merck & Co., Inc. v. Teva Pharms. USA, Inc.*, 347 F.3d 1367, 1370 (Fed.Cir.2003) (citations omitted). Therefore, the patent specification has been called the most important guide to claim construction. *See, e.g., Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (“[The specification] is always highly relevant to the claim construction analysis. Usually, it is dispositive.”); *Phillips*, 415 F.3d at 1315-16 (“The best source for understanding a technical term is the specification from which it arose, informed, as needed, by the prosecution history.” (quoting *Multiform Desiccants*, 133 F.3d at 1478)).

The specification may show that a patentee has provided its own definitions for claim terms or has narrowed the scope of the claims through disclaimer. *See Phillips*, 415 F.3d at 1316. In such cases, the claim is construed according to the patentee's expressed intent even if the resulting construction departs from the ordinary meaning of the claim language. *Id.*; *Honeywell Int'l, Inc. v. Universal Avionics Sys. Corp.*, 493 F.3d 1358, 1361 (Fed.Cir.2007) (“When a patentee defines a claim term, the patentee's definition governs, even if it is contrary to the conventional meaning of the term.”) A patentee may redefine a term either explicitly or implicitly. *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1367 (Fed.Cir.2003) (“The applicant may also act as his own lexicographer and use the specification to implicitly or explicitly supply new meanings for terms”); *Bell Atlantic Network Servs., Inc. v. Covad*

1 *Communications Group, Inc.*, 262 F.3d 1258, 1268 (Fed.Cir.2001) (“[T]he specification may
2 define claim terms ‘by implication’ such that the meaning may be ‘found in or ascertained by a
3 reading of the patent documents.’”)

4 Though claims should be interpreted in light of the specification, it is not generally
5 appropriate to import limitations from the specification into the claims. *North American*
6 *Container, Inc. v. Plastipak Packaging, Inc.*, 415 F.3d 1335, 1348 (Fed.Cir.2005) (“[U]nless
7 required by the specification, limitations that do not otherwise appear in the claims should not be
8 imported into the claims.”); *Prima Tek II, L.L.C. v. Polypap, S.A.R.L.*, 412 F.3d 1284, 1289
9 (Fed.Cir.2005) (“We have repeatedly made clear that limitations cannot be imported from the
10 specification into the claims.”); *SciMed Life Systems, Inc. v. Advanced Cardiovascular Systems,*
11 *Inc.*, 242 F.3d 1337, 1340 (Fed.Cir.2001) (referring to the plaintiff’s characterization of reading a
12 limitation from the written description into the claims as “one of the cardinal sins of patent
13 law”). On the other hand, “the claims cannot be broader in scope than the invention that is set
14 forth in the specification.” *On Demand Machine v. Ingram Industries*, 442 F. 3d 1331, 1340
15 (Fed. Cir.2006). The determination of balance point between these two considerations—
16 interpreting the claims in light of the specification, on the one hand, and guarding against
17 improperly importing limitations from the specifications into the claims—turns on “how the
18 specification characterizes the claimed invention.” *Alloc, Inc., v. International Trade*
19 *Commission*, 342 F. 3d 1361, 1370 (Fed.Cir. 2003).

20 The scope of a claim is usually not limited to the particular embodiment or embodiments
21 described in the specification. *See, e.g., Resonate Inc. v. Alteon Websystems, Inc.*, 338 F.3d 1360,
22 1364-65 (Fed.Cir.2003) (“[A] particular embodiment appearing in the written description may
23 not be read into a claim when the claim language is broader than the embodiment.”) In order to
24

1 determine whether the limitations of an embodiment should be applied to a claim, a court must
2 determine whether a person of skill in the art would consider the embodiments to be merely
3 exemplary, or whether they are intended to define the scope of the claim. *Phillips*, 415 F.3d at
4 1323; *Pfizer, Inc. v. Ranbaxy Labs. Ltd.*, 457 F.3d 1284, 1290 (Fed.Cir.2006).

5 The prosecution history, also part of the intrinsic evidence, may “inform the meaning of
6 the claim language by demonstrating how the inventor understood the invention and whether the
7 inventor limited the invention in the course of prosecution, making the claim scope narrower
8 than it would otherwise be.” *Phillips*, 415 F.3d at 1317. However, the prosecution history “often
9 lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Id.*

10 The court may also consider extrinsic evidence. *Id.* “Extrinsic evidence is that evidence
11 which is external to the patent and file history, such as expert testimony, inventor testimony,
12 dictionaries, and technical treatises and articles.” *Vitronics*, 90 F.3d at 1584. While a district
13 court may consult extrinsic evidence as part of the claim construction analysis, such evidence is
14 considered less reliable than the intrinsic evidence. *Phillips*, 415 F.3d at 1317-19 (“[T]he court
15 should keep in mind the flaws inherent in each type of [extrinsic] evidence and assess that
16 evidence accordingly.”) While the testimony of expert witnesses may be useful in some cases, a
17 court should disregard expert testimony that is merely conclusory or that is inconsistent with the
18 intrinsic evidence. *Id.* at 1318.

19 A court may use general purpose dictionaries as an aid to claim construction, so long as
20 the dictionary definition relied upon does not contradict the definition indicated by the intrinsic
21 evidence. *See id.* at 1322-23 (stating that courts “may ... rely on dictionary definitions when
22 construing claim terms, so long as the dictionary definition does not contradict any definition
23 found in or ascertained by a reading of the patent documents.”). The Federal Circuit has
24

specifically noted that dictionaries may be useful in the construction of ordinary, non-technical terms, which often involves “little more than the application of the widely accepted meaning of commonly understood words.” *Id.* at 1314; see also, *Agfa Corp. v. Creo Prods. Inc.*, 451 F.3d 1366, 1376 (Fed.Cir.2006) (affirming district court construction of “stack” based on dictionary definition); *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1306 (Fed.Cir.2006) (using dictionary definition in construction of claim term “geometry”). However, excessive reliance on dictionary definitions is improper because the “ordinary meaning” of a claim term is not the abstract dictionary definition, but the “meaning to the ordinary artisan after reading the entire patent.” *Phillips*, 415 F.3d at 1321.

Despite the guidelines outlined above, “there is no magic formula or catechism for conducting claim construction,” and a court is not “barred from considering any particular sources or required to analyze sources in any specific sequence, as long as those sources are not used to contradict claim meaning that is unambiguous in light of the intrinsic evidence.” *Id.* at 1324. Instead “what matters is for the court to attach the appropriate weight ... to those sources in light of the statutes and policies that inform patent law.” *Id.* The terms shall be construed as having their “ordinary and customary meaning” to a person of ordinary skill in the relevant art on the effective filing date of the patent application. *Id.* at 1312-13.

B. Analysis

1. Acuator

The parties ask the Court to construe the claim element “actuator.”

ARB proposes the following construction for this term:

“Actuator” – A device that converts received forces into motion; an actuator does not include the elements that exert the received forces.

Ring & Pinion proposes the following construction for this term:

1 “Actuator” – A device which converts an input energy or motion to a controlled output
2 motion in order to accurately position a load and return it to the original position.
3

4 The term is first used in claim 1, describing an “actuator position to cause movement of
5 said locking means relative to said carrier.” ‘098 patent, col. 3, lines 56-57. The parties dispute
6 whether the term “actuator” includes the force-exerting elements. As such, ARB contends an
7 “actuator” converts received forces into motion. By contrast, R&P contends that an “actuator”
8 not only converts energy into motion, but also contains the elements that supply the energy. In
9 essence, R&P argues that the cylinder (and the pneumatic force contained within the cylinder)
10 that locks the differential, and the return spring, which provides a mechanical force unlocking the
11 differential when compressed air is absent, are part of the actuator.

12 R&P puts forth that the claim language (noted *supra*) plainly states that an actuator must
13 be able to “cause movement” of the locking means. Therefore, according to R&P, an actuator
14 must have the ability to cause movement, rather than the mere ability to be moved in response to
15 an external force. ARB contends that movement need not be self-generated, but can be caused
16 by a component that transmits a force. To support the notion that the patent did not describe a
17 device in which movement must be self-generated, ARB highlights analogous claim language
18 that describes “a locking ring splined to said carrier and slidable axially to cause engagement
19 between splined teeth...” ’98 patent, col. 4, lines 34-37. This claim language illustrates an
20 instance in which the patent refers to the movement of a locking ring using similar language –
21 notably the word “cause,” which indicates the movement generated by an external force.
22 Similarly, language in the specification describes the locking ring as a passive element, moved
23 by external force: “The compressed air drives the piston...and causes the locking ring 6 to
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1 move...” ‘098 patent, col. 3, lines 4-6. In this way, force-generating components are external to
2 the actuator, and the actuator serves to convert externally applied forces and thereby cause
3 movement, as described in claim 1. Thus, the language included in the specification and claims
4 tend to support the proposition that the meaning of “actuator” does not include the force-
5 generating elements.

6 Further support for ARB’s position is found upon a reading of the embodiment contained
7 within the patent’s specification. “A patent claim should be construed to encompass at least one
8 disclosed embodiment in the written description portion of the patent specification.” *Johns*
9 *Hopkins Univ. v. CellPro, Inc.*, 152 F.3d 1342, 1355 (Fed. Cir. 1998). “A claim construction that
10 does not encompass a disclosed embodiment is thus ‘rarely, if ever, correct and would require
11 highly persuasive evidentiary support.’” *Id.* (quoting *Vitronics Corp. v. Conceptronics, Inc.* 90
12 F.3d 1576, 1583 (Fed.Cir.1996). R&P’s construction of the term “actuator” would result in the
13 exclusion of the sole embodiment contained in the specification of the patent at issue. The sole
14 embodiment and the claims require the actuator to be positioned on the same side of the pinion
15 gear as the locking ring.

16 Though R&P seeks to construe the claims to include force-generating elements as part of
17 the actuator, such a construction poses difficulties when the patent clearly requires the actuator
18 and locking ring to be positioned on the same side of the pinion gear. Specifically, R&P argues
19 (as discussed *supra*) that the cylinder (and the pneumatic force contained within the cylinder)
20 that locks the differential, and the return spring that provides a mechanical force unlocking the
21 differential when compressed air is absent, are part of the actuator.

22 Yet R&P stops short of arguing that the air passage and pipe must be construed as part of
23 the actuator. If the air passage and pipe were to be included as part of the actuator, the actuator
24

1 would not all be contained on the same side of the pinion gear, and therefore would not comport
2 with the patent's uncontested requirement that the actuator be contained on one side. R&P
3 acknowledges that an interpretation which includes the cylinder (and the compressed air inside
4 of it) as part of the actuator, but excludes the passage and pipe from being construed as part of
5 actuator, requires a distinction to be made between the former and the latter. R&P submits that,
6 unlike the cylinder, neither the pipe nor the passageway exerts force against the piston.
7 However, the specification states that "[c]ompressed air is delivered to the cylinder 12 via the
8 pipe 16 and passage 14 by actuation of a valve suitably located in the driver's cabin of the
9 vehicle to which the differential is fitted. The compressed air drives the piston 11 and seal 11a
10 axially in the cylinder 12 and causes the locking ring 6 to move the spline teeth..." '098, col. 3,
11 lines 1-9. In other words, the compressed air travels through the pipe and passage, and then
12 enters the pneumatic cylinder. The air travels through the cylinder, and then pushes against the
13 piston of the actuator. It is inconsistent to make a distinction between the cylinder, on the one
14 hand, and the pipe and passageway, on the other, when each element serves as a vessel through
15 which compressed air is transported. The more appropriate distinction is to be made between the
16 pipe, passageway, and cylinder through which compressed air travels on the one hand, and the
17 piston against which the force is exerted, on the other. It is undisputed that the pipe and
18 passageway were not intended to be construed as part of the actuator. In the end, the cylinder is
19 more fittingly grouped with the pipe and the passageway for the aforementioned reasons.
20 Therefore, in the context of this patent, the Court construes the term "actuator" to not include the
21 elements that exert the received forces.

22 2. Cylinder Means

23 The parties ask the Court to construe the claim element "cylinder means."
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1 ARB proposes the following construction for this term:

2 “Cylinder means” – a chamber shaped to mate with a piston portion of the actuator and
3 allow for axial sliding of the piston.

4 R&P proposes the following construction for this term:

5 “Cylinder means” – a cavity formed in the differential carrier, for housing the actuator.
6

7 The term is first used in claim 1, describing a “cylinder means formed in said differential carrier
8 and housing an actuator position.” ‘098 patent, col. 3, lines 55-56. Specifically, the parties
9 dispute whether the “cylinder means” encompasses the entire actuator, as argued by R&P, or
10 whether, as proposed by ARB, the “cylinder means” is shaped to mate with the piston portion of
11 the actuator and allow for axial sliding of the piston.

12 The language in claim 1, described *supra*, refers to the “cylinder means” as housing an
13 actuator. ‘098 patent, col. 3, lines 55-56. The language does not specify that the “cylinder
14 means” houses only the piston portion of the actuator, or simply a portion of the actuator.
15 Nonetheless, ARB argues that the term “cylinder means” as used in the ‘098 patent houses only
16 the piston portion. Taken alone, it would be reasonable to conclude, as R&P contends, that the
17 cylinder means as described does indeed house the entire actuator. However, as noted by ARB,
18 there is no language that affirmatively states that the entire actuator is housed within the
19 “cylinder means.” Therefore, the specific language describing the “cylinder means” is vague
20 enough such that either construction could potentially apply. Fortunately, there is other language
21 in the claims which provides strong evidence as to what the term “cylinder means” signifies.

22 R&P’s proposed construction of “cylinder means” as a “cavity” lacks support upon a
23 further examination of the claim language. Claim 1 describes “said cover plate comprising a
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1 cavity formed therein and in which said locking means is located.” ‘098 patent, col. 4, lines 1-2.
2 The fact that the claim language uses the word “cavity” distinctly to describe a space formed
3 within the differential carrier militates against finding that the term “cylinder means” also refers
4 to a “cavity” when the two terms are both used in the claims. See *Bancorp Services, L.L.C. v.*
5 *Hartford Life Insurance Co.*, 359 F.3d 1367, 1373 (Fed.Cir. 2004). While *Bancorp* establishes
6 that the use of two terms in close proximity in the same claim gives rise to an inference that a
7 different meaning should be assigned to each, the decision also states that such an inference is
8 not conclusive and may be rebutted. See *id.* However, in this case, extrinsic evidence of the
9 definition of the term “cylinder” supports the proposition that the patent used the term “cylinder
10 means” and “cavity” to signify two different things. R&P’s proposed construction of the term
11 “cylinder means” as containing the entire actuator does not comport with the traditional
12 definition of the term “cylinder” as such a space would not adhere to a cylindrical shape. The
13 use of both the term “cylinder means” and “cavity” within the same claim, combined with the
14 definition of the term “cylinder” leads to the conclusion that the term “cylinder means” as
15 employed in the patent refers to a cylinder that mates with the piston portion of the actuator. The
16 Court therefore construes the term “cylinder means” as a chamber shaped to mate with a piston
17 portion of the actuator and allow for axial sliding of the piston.

18 IV. CONCLUSION

19 The Court has now construed the terms in the patent in suit, reading the claims “in view
20 of the specification, of which they are a part.” *SciMed Life Systems*, 242 F.3d at 1340, (*quoting*
21 *Markman*, 52 F. 3d at 979-990. The disputed terms are construed as follows:

22
23 (1) “actuator” does **not include** the elements that exert the received forces.
24

1 (2) “cylinder means” is a **chamber shaped to mate with a piston portion of the**
2 **actuator and allow for axial sliding of the piston.**

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4 Dated February 18, 2011.

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7 RICARDO S. MARTINEZ
8 UNITED STATES DISTRICT JUDGE
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